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This toolkit is designed to support diagnosis and management of both mild and acute traumatic brain injury. There are two sections in this toolkit. One section is for health care providers, the other section is for individuals with Traumatic Brain Injury (TBI), both mild and acute, and their families. Individual fact sheets can be distributed to patients and family members, as appropriate.

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This fact sheet is part of the TBI Toolkit produced by the Washington State Department of Social & Health Services, Aging & Disability Services Administration. Additional copies of the TBI Toolkit can be downloaded at: <http://www.aasa.dshs.wa.gov/Library/tbitool.pdf>.



Signs and Symptoms of Mild Traumatic Brain Injury

The signs of brain injury can be very different depending on where and how severely the brain is injured. Diagnosing mild traumatic brain injury (MTBI) can be challenging because symptoms often are common to other medical problems, and onset of symptoms may occur days, weeks or months after the initial injury.

Symptoms in Persons of All Ages

Signs and symptoms of an injury to the brain may include the following.

Cognitive symptoms:

- Attention difficulties
- Concentration problems
- Memory problems
- Orientation problems

Physical symptoms:

- Headaches
- Dizziness
- Insomnia
- Fatigue
- Uneven gait
- Nausea
- Blurred vision
- Seizures

Behavioral changes:

- Irritability
- Depression
- Anxiety
- Sleep disturbances
- Problems with emotional control
- Loss of initiative
- Problems related to employment, marriage, relationships, home management or school management

Older Adults

Older adults with a brain injury may have a higher risk of serious complications such as a blood clot on the brain. Headaches that get worse or an increase in confusion are signs of this complication. A patient with these symptoms should be seen immediately.

Traumatic brain injury is a serious health risk for older adults. Falls are the major cause of TBI. Older adults with TBI may present symptoms that might be confused with other age related conditions. Persons age 75 years and older have the highest rate of TBI, hospitalization and death.

Young Children

Although children can have the same symptoms of brain injury as adults, it is harder for young children to let others know how they are feeling. In diagnosing children, physicians can refer to the 1999 recommendations of the American Academy of Family Physicians and the American Academy of Pediatrics available on the Internet at <http://www.aap.org/policy/ac9858.html>.

Ask parents if they have noticed any of the following in their child:

- Listlessness, tiring easily
- Irritability, crankiness
- Change in eating or sleeping patterns
- Change in the way they play
- Change in the way they perform or act at school
- Lack of interest in favorite toys
- Loss of new skills, such as toilet training
- Loss of balance, unsteady walking



Children with a brain injury may exhibit one or more of the following signs and symptoms.

Physical disabilities:

- Problems speaking, seeing, hearing and using other senses
- Headaches and fatigue
- Trouble with skills such as writing or drawing
- Sudden contraction or tightening of muscles (spasticity)
- Seizures
- Problems with balance and walking
- Complete or partial paralysis on one or both sides of the body

Difficulties with thinking:

- Trouble with short-term or long-term memory
- Trouble concentrating for long periods of time
- Slow thinking
- Trouble talking and listening
- Difficulty with reading, writing, planning, sequencing of events and judgment

Social, behavioral or emotional problems:

- Sudden changes in mood
- Anxiety and depression
- Trouble relating to others
- Restlessness
- Laughing or crying a lot
- Loss of motivation and/or control of emotions

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Reprinted from: National Center for Injury Prevention and control, *Facts About Concussion and Brain Injury*, U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, Version 2.



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Facts about Mild Traumatic Brain Injury

Mild traumatic brain injury (MTBI), commonly known as concussion, is one of the most common neurologic disorders. Physicians can play a key role in helping to reduce the occurrence of MTBI by educating patients and the community about risks and injury prevention.

Physicians can also improve patient outcomes when MTBI is suspected or diagnosed by implementing early treatment and appropriate referral.

Early MTBI symptoms may appear mild, but they can lead to significant, life-long impairment in an individual's ability to function physically, cognitively and psychologically. Although currently there are no standards for treatment and management of MTBI, appropriate diagnosis, referral and patient and family education are critical for helping MTBI patients achieve optimal recovery and to reduce or avoid significant sequelae.

MTBI Facts

- Data suggest that as many as 75% of all brain-injured people sustain MTBIs.
- MTBIs cost the nation nearly \$17 billion each year.
- An unknown proportion of those who are not hospitalized may experience long-term problems, such as:
 - Persistent headache
 - Confusion
 - Pain
 - Cognitive and/or memory problems
 - Fatigue
 - Changes in sleep patterns
 - Mood changes
 - Sensory problems such as changes in vision or hearing (post-concussion syndrome)
- In most cases of diagnosed MTBI, the patient recovers fully.
- Some research indicates that up to 15% of patients diagnosed with MTBI may have experienced persistent disabling problems.

Conceptual Definition of MTBI

Experts from the Centers for Disease Control and Prevention's MTBI Working Group define a case of MTBI as the occurrence of injury to the head arising from blunt trauma or acceleration or deceleration forces with one or more of the following conditions attributable to the head injury.

- Any period of observed or self-reported:
 - Transient confusion, disorientation or impaired consciousness
 - Dysfunction of memory around the time of injury
 - Loss of consciousness lasting less than 30 minutes
- Observed signs of other neurological or neuropsychological dysfunction, such as:
 - Seizures acutely following injury to the head
 - Irritability, lethargy or vomiting following head injury, especially among infants and very young children
 - Headache, dizziness, irritability, fatigue or poor concentration, especially among older children and adults



TBIs may include both concussions and contusions. The term “concussion” is used at times interchangeably with the term “mild TBI.” But the category of diagnosed concussions covers a clinical spectrum. Concussion may occur without loss of consciousness. Mild concussion may be present even if there is no external sign of trauma to the head. The Quality Standards Subcommittee of the American Academy of Neurology defines the spectrum of concussions related to sports injuries as follows.

Grade 1 Concussion

Transient confusion, no loss of consciousness and duration of mental status abnormalities on examination that resolve in less than 15 minutes.

Grade 2 Concussion

Transient confusion, no loss of consciousness, concussion symptoms or mental status abnormalities on examination that last more than 15 minutes.

Grade 3 Concussion

Any loss of consciousness, either brief (seconds) or prolonged (minutes).

Leading Causes of MTBI

- Motor vehicle crashes
- Falls
- Firearm use
- Sports/recreational activities

Groups Most at Risk for MTBI

- Adolescents and young adults (ages 15 to 24)
- Older adults (ages 65 and older)

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Diagnosing Mild Traumatic Brain Injury

Diagnostic Tests

In addition to direct observation, there are a number of diagnostic tests that can be used to assess the existence and/or severity of MTBI. They include:

- Neurological exam
- X-ray
- CT Scan
- MRI Scan
- Angiogram

Taking a Careful History

Close, careful history taking is essential in diagnosing MTBI. Questioning patients as to whether they have had an injury or accident is an important first step because some patients may not mention it to their physicians. For the following reasons careful history taking to ascertain the nature of the problem is very important.

- Some may not consider the injury serious because they were told the condition was mild or just a "bump on the head"
- Some may not realize they received a head injury because they were briefly unconscious at the time of the incident
- Some may focus on a more severe injury that occurred at the same time
- Some may be too embarrassed to mention certain symptoms, such as memory problems

Making a Diagnosis

MTBI diagnosis should be considered when one or more of the following conditions occur following a brain injury:

- Confusion or disorientation
- Amnesia near the time of the injury
- Loss of consciousness up to 30 minutes
- Neurological or neuropsychological problems
- Score of 13 or higher on the Glasgow Coma Scale (GCS)

In assessing patients for possible MTBI, it is important for physicians to determine whether there is any evidence that a brain or other intracranial injury is present or is likely to have occurred, especially among:

- Patients who did not see a physician after sustaining an injury
- Patients referred by an emergency department
- Patients facing orthopedic or facial trauma surgery
- Patients who did not receive follow-up care following admission to a hospital for an injury



Managing and Treating Mild Traumatic Brain Injury

Clinical Management of MTBI

Because the effects of MTBI can be so diverse, no standard treatment exists. But physicians can take many actions to improve outcomes for patients with MTBI. Treatment outcome is dependent on the appropriate diagnosis of factors potentially responsible for persistent symptoms such as psychiatric problems and post-injury conditions (for example, post-traumatic migraine among persons with family history of migraine). Management of patients with MTBI may include a spectrum of approaches, beginning with patient and family education and possibly encompassing medical treatment, physical-psychiatric therapies and occupational interventions.

Soliciting the Right Information from Patients

Following these tips will help you solicit information to make an accurate diagnosis and ensure an effective treatment and recovery.

- **Observe the patient closely to check for physical, cognitive or behavioral changes that might signal MTBI.**
- **Question your patient and/or the caregiver closely.** When possible, ask questions to elicit more details about the injury, such as “Tell me about,” or “Describe...”
- **Listen carefully** for information the patient or caregiver may give you about difficulties in physical, cognitive or behavioral status.
- **Provide additional printed information to patients** about the condition and expectations, appropriate referrals and available community resources.

- **Write out clear instructions for the patient and/or caregiver** to take home and, as appropriate, to share with workplace supervisors or school staff.
- **Refer patients** to physicians who specialize in brain injury, as necessary.
- **Steer patients to available community resources** that may provide additional support.
- **Follow up with patients to ensure that any MTBI-related problems are addressed in a timely fashion.**
Flag charts or otherwise make note of the need to follow individuals who have possible MTBIs.

Management Approaches

Consideration of physical, emotional and/or behavioral signs and symptoms will guide management plans. Those plans may include some or all of the following approaches:

- Evaluating and treating patients who present early for somatic complaints and documenting baseline neurological findings, including cognitive and emotional state
- Assessing the ability of the patient to return to everyday activities, such as sports, work or operating motor vehicles
- Educating patients and their families about the treatment plan and expected outcomes
- Prescribing medication, as appropriate, for significant anxiety or depression



- Referring patients, as appropriate, to neurologists and/or psychiatrists when emotional or cognitive symptoms interfere with normal routines and relationships
- Referring patients to specialized multidisciplinary cognitive therapy programs, as appropriate. Such programs may include psychotherapy, neuropsychologist/neuro psych testing, occupational/vocational or adaptive strategy training

Preventing Secondary Injury

MTBI is associated with diminished reaction time and risk for secondary injury. Providing written instructions on a patient's discharge sheet regarding timing for return to regular and high-risk activities may help prevent this type of injury, especially in regard to the following:

- Returning to high-risk sports participation (i.e., horseback riding, snowboarding, skiing, roller blading, cycling)
- Driving a motor vehicle
- Operating machinery

Written instructions also may be used by families to provide information to teachers and coaches of children and young adults in school and college settings.



The Role of Rehabilitation

Research has found that patients who received inpatient rehabilitation after brain injury had better outcomes than patients who received only acute care. Outcomes were measured in the areas of functional status, daily care requirements, ability to return home and vocational status.

Acute inpatient hospital rehabilitation uses an interdisciplinary approach that includes medical stabilization, physical rehabilitation and cognitive/behavioral rehabilitation. This approach promotes learning, coping and adapting as the patient faces life-altering changes.

Social skills training and counseling services are provided to address the emotional and adjustment needs of the individual and family. In this environment, interaction among patients provides another opportunity for support.

Elements of TBI Rehabilitation

According to Cope (1995), comprehensive TBI rehabilitation today consists of at least the following elements:

- The rehabilitation physician (also known as a physiatrist) and rehabilitation nurse have special training in diagnosing and treating people with disabilities. Their goal is to help the patient function as independently as possible.
- The prevention of secondary deterioration is important. Evidence clearly confirms that specific interventions can prevent deterioration and complications. These interventions may not reliably occur in non-rehabilitation environments.
- Rehabilitation builds upon natural recovery processes. Rehabilitation interventions are incremental and work toward functional gains. The challenges of mobility, self-care and communication can be overwhelming for the patient. This may result in a hopeless “giving-up” response by the patient. Over time and with comprehensive rehabilitation, progress can occur.
- An optimal environment for neurological recovery is provided by rehabilitation settings.
- Various compensatory techniques are provided and taught to promote recovery and help with the tasks of daily living.
- Adaptive and specialized equipment, such as wheelchairs or orthoses, is available in this setting.
- Environmental modifications are available. These include architectural and transportation interventions. Even more important may be interventions in the patient’s social milieu, which include modifications at home, at work and in the community.



In the Report of the Panel for Consensus Development Conference on Rehabilitation of Persons with Traumatic Brain Injury dated October 1998, Diane Murphy, a survivor since 1990, made these comments in the sidebar concerning the need for rehabilitation services and difficulties associated with under diagnosis of TBI.

"I am six years post-accident. However, getting here was not an easy task. Taking the advice of very educated doctors, my husband brought my broken body home after being in the hospital in critical condition for two weeks. My family did not worry about my brain injury, at least not out loud. They tended to the visible injuries, thanking God every day that my daughter and I had survived the accident. Who ever heard of a brain injury that doesn't kill the person or put them in a lifelong coma? Right?"

Becoming better wasn't nearly as hard as finding the right place to get better. I would really like to see the health community and general population informed about all the problems associated with a mild brain injury. I am hoping that the next person with a brain injury gets directed to immediate care, not a band aid excuse of 'Don't worry— it will all work itself out.'"

Unfortunately, the story described does occur. Inpatient or outpatient rehabilitation can begin to address the brain injury issues that cause so much frustration and confusion.

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Reprinted from: 'Skill Pak for Hospital Staff to Help Families Understand Brain Injury', TBI Project A.C.C.E.S.S., North Carolina Department of Health & Human Services. References: Report of the Panel for Consensus Development Conference on the Rehabilitation of Persons with TBI, October 26-28, 1998. Cope, Nathan, "The Effectiveness of Traumatic Brain Injury Rehabilitation, a Review" 'Brain Injury', Volume 9, No. 7 1995, pages 649-670.



Communicating with Patients and Families about TBI

What Information Do Families Need?

Information about brain injury is the number one need reported by families. Yet educating families about brain injury is complicated. The brain is so complex that it is difficult to predict recovery. Each brain injury is unique.

The Three C's or Basic Rules of Communication with Families Are...

Currency: Current or up-to-date information

Content: Important information at that time

Compassion: How information is given

How information is delivered can be just as important as what is said.

Any hospital stay is stressful for families, but treatment for a brain injury makes this an even more difficult time. Many families are in a state of emotional shock, confusion and grief in the early days of hospital care. This stage is commonly referred to as denial. This is a coping method used while families gather the inner resources to deal with the diagnosis and its meaning. It does not mean that families do not need or want information at this stage. It does mean that families may retain only a small portion of conversations because of their stress and fluctuating emotions.

It is important for professionals to ask what they are doing to help educate and communicate with the family. Every person involved with the patient, whether a physician, therapist or nurse, is a potential

communicator and educator with the family. Surveys show that clear and understandable information is one of the most important priorities for families.

Communicating with Families

- Explain what part or parts of the brain have been injured.
- Use diagrams of the brain to illustrate what is being said.
- Provide family with Glossary of Terms handout.
- Explain how the brain reacts to an injury.
- Explain what is being done to help the patient's brain function now.
- Describe what may happen next.
- Suggest ways that families can communicate and comfort the patient.
- Explain the Glasgow Coma Scale and/or the Rancho Los Amigos Scale if either or both are being used.

Communicating After Brain Injury

1. Communicate in clear, non-technical language.
2. Gauge level of understanding as you proceed.
3. Respond to emotional needs of family members.



Setting Up Communication

- Talk with families in a private comfortable space whenever possible; avoid distractions and being overheard.
- Avoid talking in the presence of a patient who is in a coma or low level cognitive state; it is not known how much the patient can hear.
- Use body language to convey attention and respect. For example, sit with families rather than standing over them.
- If families have difficulty understanding English, obtain a professional medical interpreter. Try not to rely on a family volunteer who might misunderstand or have limited command of English.

Giving Information

- Assess families' ability and willingness to absorb information and adjust your pace and vocabulary.
- Connect families' observations of the patient with clinical findings. Start with external observations and objective data. End with clinical implications.
- Review and repeat information as needed.
- Give copies of illustrations to explain neuroanatomy.
- Avoid false or premature reassurances as they can confuse families and create mistrust.
- Summarize information exchanged and decisions made at the end of a meeting with families.
- Give written information about brain injury, such as pamphlets or fact sheets.

Involving Families

- Treat families as team members with valuable knowledge about the patient prior to the brain injury.
- Help families feel confident by acknowledging the accuracy of their observations and their ability to care for the patient.
- Admit it when you don't know the answer to a question, but reassure families that their questions are valid.
- Encourage families to record information using methods that are easy for them to remember, such as audiotapes, note taking or journaling.
- Maintain regular communication with the family as a patient progresses.
- Ask the family to identify one person to be the primary link for communication and know how to contact that person.
- Involve families in discharge planning.

Supporting Families

- Ask families about their feelings and give them time to talk about them. Unexpressed feelings can block communication and learning.
- Recognize the normal stages of grief for families. They include denial, anger, bargaining, depression and resolution. You may see the full range or the early stages depending on the length of stay and the patient's progress.
- Expect anger from families. It is a normal part of grieving. Do not take it personally or retaliate if you are the target for a family's emotions.
- Respect spirituality of families and inform them of resources in the hospital, such as chaplains or a chapel.
- Give families tasks to help them cope with their anxiety and acknowledge the contributions they make. Examples are rubbing body lotion, reading stories and teaching simple exercises.

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Cultural Diversity and Communicating with Patients

Delivering quality healthcare to culturally diverse populations is an increasing challenge in health care. The following steps are important to building bridges between health care professionals and families from different cultures.

Understand your values and assumptions.

Understanding your cultural heritage requires identifying your values, beliefs and customs. Everyone has a culture, but often individuals are not aware of behaviors, habits and customs that are culturally based. All cultures have built-in biases, but there are no right or wrong cultural beliefs.

Be aware of patients' cultural beliefs.

Health care providers must know and understand culturally influenced health behaviors. Examples are cultural issues about medications, decision makers in the family, body language, strongly held beliefs about alternative practices, diet and herbs. A person's cultural background can influence views on:

- Family structure and authority
- The role of an elder
- Respectful communication
- Proper behavior
- Dress and personal hygiene preferences
- Food preferences

By becoming aware of the patient and family's cultural beliefs, instruction on medical care can be more effective.

Be an effective communicator.

Communication may involve interpreters and translators. Using a trained interpreter, and not a family member, is recommended. When family members are upset, it is difficult to absorb information. Using a family member to interpret increases the risk that information will not be understood correctly. Children are often the only bilingual family members present. They should never be asked to interpret medically complex and culturally sensitive information.

Listening is also a communication tool. To provide culturally competent health care means to truly listen to the patient and the family to learn about the patient's beliefs of health and illness. This cannot be stressed enough.

Culture is a complex phenomenon. It is more than race and ethnic background. Cultural diversity also includes age, place of birth, disabilities, religious belief and sexual orientation.

Culture encompasses beliefs and behaviors that are learned and shared by members of a group.



Tips on Educating Families about Traumatic Brain Injury

- Explain differences between brain injury and mental illness or other developmental disabilities.
- Stress that changes in the patient's mobility, behavior or learning may be from the brain injury and not because of any wrongful act committed by ancestors or other beliefs.
- Explain the importance of taking medicine for the prescribed number of days, even if the patient feels better or is not showing any more symptoms. If the culture has a present orientation, the family may not understand the need to continue preventive medications, such as those for seizures. If the culture has a past time orientation, the family may prefer "traditional" medication or procedures.
- Make sure that the family uses standard measures for medications. Demonstrate the exact dosage or give the family a medicine spoon or measure to use.
- Ask for dates of cultural holidays. Avoid scheduling appointments during these times.
- Consider the terms "noncompliant, passive or resistant" as warning flags that communication is not working. Explore cultural reasons why the family and patient are not able to understand and respond.

Resources to Improve Cultural Competency

There are good resources on the role of culture and heritage on health care interactions. If your patient population includes members of cultures with which you're not familiar, please consider downloading and reviewing some of the available materials:

Ethnomed, Ethnic Medicine Information from Harborview Medical Center,
<http://ethnomed.org/>

Cross Cultural Health Care Program,
<http://www.xculture.org/resource/library/index.cfm#downloads>

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Credits: 'Skill Pak for Hospital Staff to Help Families Understand Brain Injury', TBI Project A.C.C.E.S.S., North Carolina Department of Health & Human Services Cross Cultural Health Care Program fact sheets, <http://www.xculture.org/resource/library/index.cfm#downloads>



Addressing the Needs of School-Aged Children with TBI

School and Children with TBI

Your patients who are school-aged children may have particular challenges acclimating to a classroom setting. Often, students with TBI are thought to have a learning disability, emotional disturbance or mental retardation. As a result, they don't receive the type of educational help and support they really need.

When children with TBI return to school, their educational and emotional needs are often very different than before the injury. Their disability has happened suddenly and traumatically. They can often remember how they were before the brain injury. This can bring on many emotional and social changes. The child's family, friends and teachers also recall what the child was like before the injury. These other people in the child's life may have trouble changing or adjusting their expectations of the child.

Therefore, it is extremely important to help parents plan carefully for the child's return to school. Parents should be guided to find out about special education services at the school. This information is usually available from the school's principal or special education teacher. The school will need to evaluate the child thoroughly. This evaluation will let the school and parents know what the student's educational needs are. The school and parents will then develop an Individualized Education Program (IEP) that addresses those educational needs.

You can help parents and teachers by providing them with the "Back to School with TBI" fact sheet, which includes tips for parents as well as a fact sheet parents can give to the child's teacher. The fact sheets are included in this toolkit.

Parents should be encouraged to:

- Learn about TBI. The more they know, the more they can help themselves and their child.
 - Work with the medical team to understand their child's injury and treatment plan.
 - Keep track of their child's treatment. A three-ring binder or a box can help store this history.
 - Talk to other parents whose children have TBI. There are parent groups all over the U.S. Parents can share practical advice and emotional support.
 - Plan for their child's return to school.
 - Have the school test the child as soon as possible to identify special education needs.
 - Educate siblings and peers.
- Information is available at www.thearc.org/siblingsupport/



TBI Resources

There are numerous sources of information about TBI. The following resources will help you, your patients and your patients' families learn how to deal with TBI.

Articles

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- Outcome 3 to 5 years following traumatic brain injury. Dikmen, S.S., Machamer, J.E., Powell, J.M., & Temkin, N.R. (2003) *Archives of Physical Medicine and Rehabilitation*, 84, 1449-1457.
- "Aging effect on psychosocial outcome in traumatic brain injury," by Barbara Rothweiler, Ph.D., Nancy R. Temkin, Ph.D., and Dr. Dikmen, in the August 1998 *Archives of Physical Medicine and Rehabilitation* 79, pp. 881-887.
- National Institute on Aging. Working with Your Older Patient: A Clinician's Handbook 1994. Available from: url: www.nia.nih.gov/health/pubs/clinicians-handbook.



Web Sites and Organizations

Brain Injury Association
www.biausa.org

Brain Injury Information Page
www.tbilaw.com

The Brain Injury Recovery Network
<http://www.tbirecovery.org>

Brain Injury Research Center
www.braininjuryresearch.org/

Centers for Disease Control and Prevention
<http://www.cdc.gov/ncipc/tbi>

Head Injury Hotline
<http://www.headinjury.com>

National Resource Center for Traumatic Brain Injury
<http://www.neuro.pmr.vcu.edu>

Traumatic Brain Injury National Data Center
<http://www.tbindc.org>

Traumatic Brain Injury Resource Guide
<http://www.neuroskills.com>

Sites Specific to Children

TBI in School Children
<http://www.mssm.edu/tbinet/alt/TA/techa2.html>

Brain Injury: A Guide for School Nurses
http://www.bianj.org/pdf/BI_guideSchoolNurses.pdf

This fact sheet is part of the TBI Toolkit produced by the Washington State Department of Social & Health Services, Aging & Disability Services Administration. Additional copies of the TBI Toolkit can be downloaded at: <http://www.aasa.dshs.wa.gov/Library/tbitool.pdf>.

"Heads Up Brain Injury in Your Practice" toolkit, Centers for Disease Control and Prevention



TRAUMATIC BRAIN INJURY



Credits

Contents of this toolkit are based on:

'Skill Pak for Hospital Staff to Help Families Understand Brain Injury', TBI Project A.C.C.E.S.S., North Carolina Department of Health & Human Services

"Heads Up: Facts for Physicians about Mild Traumatic Brain Injury (MTBI)," produced by the Centers for Disease Control and Prevention. <http://www.cdc.gov/doc.do?id=0900f3ec80017619>

"Disability Fact Sheet—No.18: Traumatic Brain Injury," produced by NICHCY, the National Dissemination Center for Children with Disabilities. <http://www.nichcy.org>

"Facts about Concussion and Brain Injury: Where To Get Help," produced by the Brain Injury Association and the Centers for Disease Control and Prevention. <http://www.biausa.org> and <http://www.cdc.gov/ncipc/tbi>

"Traumatic Brain Injury (TBI): Patient Materials," The Centers for Disease Control and Prevention. <http://www.cdc.gov/ncipc/tbi>

"Michigan Resource Guide for Persons with Traumatic Brain Injury and Their Families," produced by the Center for Collaborative Research in Health Outcomes and Policy at the Michigan Public Health Institute. http://www.michigan.gov/documents/resourcedirectorydraft_2_02v07_23016_7.pdf

"When Your Child's Head Has Been Hurt," produced by the Arizona Governor's Council on Spinal & Head Injuries in collaboration with the Arizona Department of Health Services <http://www.tbitac.org/download/azheadfs.pdf>

"Acute Brain Injury: A Guide for Family and Friends," produced by the University of Iowa, in cooperation with the Advisory Council on Brain Injuries and the Iowa Brain Injury Resource Network of the Brain Injury Association of Iowa. <http://www.vh.org/adult/patient/neurosurgery/braininjury/>

"Important First Steps, What Should I Do Next?" produced by the Brain Injury Association of Texas and the Texas Traumatic Brain Injury Advisory Council. <http://www.tbitac.org/download/firststeps.pdf>

"About Brain Injury, Rancho Los Amigos Scale/ The Levels of Coma," produced by Waiting.com. <http://www.waiting.com/levelsofcoma.html>

"Self-Advocacy and Traumatic Brain Injury," produced by Washington Protection & Advocacy System, <http://www.wpas-rights.org/>

"Traumatic Brain Injury: Independent Study Course," Department of Veterans Affairs, released January 2004.

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